December 7, 1964

LINEAR PHASOLVER MEASURING ENGINE

The principle road block to completion of the linear phasolver program was the preparation by [redacted] of a satisfactory master driver pattern. [redacted] has been making trial masters and [redacted] have been rejecting them since last spring. The one promising aspect of the situation is the possibility of using the most recent [redacted] driver master as is. The defects appear to be of two kinds:

a) Blemishes and scratches which can probably be repaired;

b) A systematic double frequency error which can probably be compensated electrically.

[redacted] is proceeding with one driver from [redacted] which he has sent to [redacted]

We went thru the exercise of estimating at this stage of the program what the eventual accuracy might be. According to [redacted] tests to date the electronic noise and stability will probably produce $\pm\frac{1}{4}$ micron random error which is the lower limit. The upper limit is estimated to be about $\pm$ 1½ micron systematic error. How much of the $\pm$ 1½ micron systematic error can be compensated and how close they can get to the $\pm\frac{1}{4}$ micron minimum random error cannot be determined yet.

[redacted] is considering the problem and will try to determine whether it can be done within the scope of the present program. [redacted] is now preparing working reproductions of [redacted] driver master pattern and also [redacted] is preparing a full length coupler bar pattern to work with the driver. [redacted] expected to have them done by Nov. 27 but ran into some machine trouble. He now expects to complete them by the end of this week, Dec. 11. If [redacted] delivers as expected, [redacted] still hopes to complete the assembly and be ready to demonstrate feasibility by Jan. 18, 1965.

[redacted]